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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/925,578
Filing Date: August 09, 2001
Appellant(s): BEUKEMA ET AL.

Wayne P. Bailey
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 29, 2007 appealing from the Office action mailed May 30, 2006.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection of claims 8-11, 19-22 and 30-33 under 35

U.S.C. 102(e) as being anticipated by Kashyap (US 6,944,786) have been withdrawn by the examiner.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,944,786	Kashyap	9-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 12-18, 23-29, 34 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,944,786 to Kashyap.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As concerns claim 1, a method of multicasting a data packet in a system area network, comprising: receiving the data packet, wherein the data packet includes an identifier of a multicast group (column 6, lines 45-46, 49-50); identifying a plurality of queue pairs (column 6, line 10; column 5, line 52) that are members of the multicast group (column 5, lines 51-56 column 9, lines 66-67); and delivering the data packet to each of the plurality of queue pairs that are members of the multicast group (column 5, lines 59-64; column 10, lines 15-20; column 6, lines 48-50).

As concerns claims 2, 13 and 24, wherein the data packet is received in a channel adapter (column 1, line 32) of an end node, the end node being a final destination for the data packet within the system area network (502).

As concerns claims 3, 14 and 25, wherein the data packet is received in a channel adapter of an end node (column 6, lines 11-12), wherein the data packet originates from the end node, and, wherein delivering the data packet to each of the plurality of queue pairs that are members of the multicast group includes replicating the data packet for each of the plurality of queue pairs that are internal to the end node (inherent in multicasting to replicate a packet and send the packet to its destination which is a group member, regardless if it is in the same node as long as it is within the group).

As concerns claims 4, 15 and 26, further comprising: decoding the data packet; and storing the data packet in a multicast packet buffer (column 4, lines 6-14, 43-50; column 5, line 60-64).

As concerns claims 5, 16 and 27, wherein decoding the data packet and storing the data packet in the multicast packet buffer are performed by port logic (column 6, lines 10-19).

As concerns claims 6, 17 and 28, wherein decoding the data packet and storing the data packet in the multicast packet buffer are performed by channel adapter logic (column 6, lines 10-19; 418).

As concerns claims 7, 18 and 29, wherein each of the plurality of queue pairs comprises a send queue and receive queue (column 5, line 59), and wherein identifying the plurality of queue pairs includes determining which queue pairs are associated with a destination local identifier in the data packet (column 6, lines 56-66; column 9, line 66-column 10, line 25).

As concerns claims 12 and 23, a computer program product in a computer readable medium for multicasting a data packet in a system area network, comprising: first instructions/means for receiving the data packet (figures 2-4), wherein the data packet includes an identifier of a multicast group (column 6, lines 45-46, 49-50); second instructions/means for identifying a plurality of queue pairs that are members of the multicast group (column 6, line 10; column 5, lines 52, 59-64); and third instructions/means for delivering the data packet to each of the plurality of queue pairs that are members of the multicast group (column 5, lines 59-64).

As concerns claim 34, the method of claim 1, wherein receiving the data packet includes: determining if there is an error in receipt of the data packet; and if there is an error in receipt of the data packet, dropping the data packet (column 5, lines 1-10).

As concerns claim 35, the method of claim 1, wherein delivering the data packet to each of the plurality of queue pairs that are members of the multicast group includes: determining if there is an error in delivering the data packet to each of the plurality of queue pairs; and dropping the data packet if an error occurs during delivery of the data packet to each of the plurality of queue pairs (column 5, lines 1-10; column 7, lines 10-12).

(10) Response to Argument

A.1. Claims 1, 2, 4-6, 12, 13, 15-17, 23, 24, 26-28 and 34

Argument 1-The Appellants argue Kashyap does not disclose, "identifying a plurality of queue pairs that are members of the multicast group" (page 10 of Brief). The Appellant further states "Kashyap's association of a multicast DLID with a port of each node that is a member of the multicast group does not teach any step of associating or identifying queue pairs that are members of a multicast group (page 11 of Brief).

Kashyap discloses, at least at col. 6, lines 45-50, nodes within a network can join a multicast group and a port on the node is assigned a multicast DLID for the multicast group. Kashyap discloses, at least at col. 5, lines 48-64 and col. 6, lines 10-11, the nodes have running thereon processes having associated QPs. The QPs are located on the node that is part of multicast group, therefore the QPs are associated with a multicast group. Furthermore Kashyap at col. 9, lines 66-67 discloses "a multicast DLID that has been configured for the QP" which

further identifies the association of a QP as a member of a multicast group, through its association with the multicast DLID port.

Argument 2-The Appellants argue Kashyap does not disclose, "delivering the data packet to each of the plurality of queue pairs that are members of the multicast group" (page 10 of Brief).

Kashyap discloses this limitation at least at col. 6, lines 48-50: "A data packet sent to the multicast DLID is sent to each node that has joined the multicast group". Therefore, when the delivered multicast packet is received at the addressed node, that is part of the multicast group, it will then be delivered to the respective QP (see Kashyap col. 9, line 66-67-"a multicast DLID that has been configured for the QP" and col. 6, lines 17-18-QPN).

Argument 3-The Appellants argue the Kashyap multicast group is directed to and associated with a port of each node and not to queue pairs (page 11, last line-page 12, line 1 of Brief). The Appellant further states, "Kashyap teaches that the operation of each queue pair is independent from the others (col. 6, line 1), further evidence that multiple queue pairs are not grouped/associated with a given multicast group" (page 12 of Brief).

The QPs are located on the node that is part of multicast group, therefore the QPs are associated with a multicast group. Furthermore Kashyap at col. 9, lines 66-67 discloses "a multicast DLID that has been configured for the QP" which further identifies the association of a QP as a member of a multicast group, through its association with the multicast DLID port.

The Examiner disagrees with the Appellants' interpretation of Kashyap at col. 6, line 1. Kashyap states, "A CA may supply up to 2^{24} QPs and the operation on each QP is independent from the others" (col. 5, line 67-col. 6, line 2). This passage teaches a QP is supplied for an operation, wherein these operations are independent from each other. There is no context within this passage that would support Appellant's statement, since this passage is not equating "independent from each other" in association with multicasting or a multicast group.

Argument 4-The Appellants argue, "Claim 1 identifies specific queue pairs that are members of a multi-cast group" (page 12 of Brief).

In response to Appellants' argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "specific queue pairs) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

A.2. Claims 3, 14 and 25

Argument 5-The Appellants argue "Kashyap does not associate queue pairs with a broadcast group-but instead associates ports with a broadcast group-there would be no reason to replicate data packets for each of a plurality of queue pairs."

The limitations of claims 3, 14 and 25 are not allowable over the prior art of record, since Kashyap anticipates the claimed invention. The claims recite "wherein delivering the data packet...includes replicating the data packet for each of the plurality of queue pairs." Kashyap

discloses delivering a data packet to members of a multicast group. Multicasting, in itself, entails that the data packet is replicated. This is inherently the case in order for a single message sent by a user to a plurality of users simultaneously to be achieved. The sending user is not creating a separate message for each receiver. The sending user creates one message, that they want to be sent to the group, and that message is then replicated and sent over the network to be delivered to the intended destination. Along the route of the network the packet will be directed to an appropriate multicast port and then will be directed to the associated QP. Kashyap discloses an end node that is a member of a group (see col. 6, lines 46-47). If a user on the end node has a process that is running there are QPs associated with the process (see figure 5). If the user sends a message to the multicast group, and the user is a member of that multicast group, the message/packet has been replicated in order to be sent out to the plurality of users. One of the packets is received at the port of the sender, since it is a member of the group. The message/packet will not remain in the port, it will be delivered to the "paired" QP (see col. 5, lines 57-60) of the corresponding process. Since there is a plurality of QPs for members of the group and these members can include multiple end nodes on a network, you will have a single QP that is internal to the originating end node, since the other plurality of QPs that are members of the group are located on other end nodes. The claims are given their broadest reasonable interpretation and such a scenario is encompassed by the metes and bounds of the claims. The invention of Kashyap covers this scenario thus rendering the claims anticipated by the reference.

A.3. Claims 7, 18 and 29

Argument 6- The Appellants argue "This cited passage makes no mention whatsoever of any type of queue pair or queue pair identification, and thus cannot teach the specific claimed step of "wherein identifying the plurality of queue pairs includes determining which queue pairs are associated with a destination local identifier in the data packet" (see page 14 of Brief).

The claims are rejected in view of the prior art reference as a whole and not just a particular passage recited in the reference. The claims are given the broadest reasonable interpretation and are anticipated by Kashyap at least at col. 9, line 66-col. 10, line 25, wherein an association between a DLID (destination local identifier) and a QP are disclosed. In order for a packet to arrive at the QP it must first have been received at the DLID and then be sent to the QP. Thus there is also an inherent association between the DLID and QP since the determination or selection of the destination QP is not capricious.

A.4. Claims 8, 19 and 30

Appellants' arguments, with respect to claims 8, 19 and 30 have been fully considered and are persuasive. The rejection of claims 8, 19 and 30 has been withdrawn.

A.5. Claims 9, 20 and 31

Appellants' arguments, with respect to claims 9, 20 and 31 have been fully considered and are persuasive. The rejection of claims 9, 20 and 31 has been withdrawn.

A.6. Claims 10, 21 and 32

Appellants' arguments, with respect to claims 10, 21 and 32 have been fully considered and are persuasive. The rejection of claims 10, 21 and 32 has been withdrawn.

A.7. Claims 11, 22 and 33

Appellants' arguments, with respect to claims 11, 22 and 33 have been fully considered and are persuasive. The rejection of claims 11, 22 and 33 has been withdrawn.

A.8. Claim 35

Argument 7- The Appellants argue "There is no teaching or discussion of any type pertaining to queue pairs, and thus this cited passage cannot teach any type of determination as to determining if there is an error in delivering the data packet to each of the plurality of queue pairs" (page 19 of Brief).

The claims are rejected in view of the prior art reference as a whole and not just a particular passage recited in the reference. The claims are given the broadest reasonable interpretation and are anticipated by Kashyap at least at col. 5, lines 1-10 and col. 7, lines 10-12. These passages disclose the use of reliable connections. Kashyap further discloses the reliable connection can use acknowledgments to ensure the packets are received properly. If there is an error, the acknowledgment will not be sent and the packet will be dropped. The packet will then be resent to ensure a reliable connection of the proper packets.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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